

## SOME NEW PEDICULATE FISHES.

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### RHYCHERUS, *gen. nov.*

Form robust: body compressed, elevated in front, rapidly tapering behind. Head large, as deep as long. Skin smooth, densely clothed with cutaneous appendages. Mouth protractile, with moderate subvertical cleft; maxillary thin and flexible, reniform, extending well beyond cleft of mouth. Jaws, vomer, and palatines with small cardiform teeth; tongue smooth. Eyes moderate; infraorbital groove deep and naked. Gill-opening forming a simple longitudinal slit on the lower edge of the pseudobranchium some distance in advance of the fin. All the fins with numerous appendages: dorsal spines well developed, erect, mobile, free; rostral spine slender, rising directly from the tip of the snout, and terminating in a bifid tentacle; frontal and occipital spines stouter than but as flexible as the rostral, widely separated, with a deep naked fossa intervening, the latter inserted far behind the eye; second dorsal with 13 rays, most of which terminate in a long filament: anal fin with 8 simple rays, inserted below the terminal third of and far overlapping the soft dorsal: caudal fin rounded, with 9 rays, all except the outer pair branched; caudal peduncle free: pseudobranchium immobile, firmly fixed to the side by the enveloping cuticle, pectoral fin large and rounded, with 10 simple rays, extending, when appressed, to the origin of the anal: ventrals small and rounded, with 5 simple rays. (*ῥέχρηρος*, ragged: in allusion to its shaggy appearance due to the crowded cutaneous appendages).

Southern Shores of Australia (Victoria and South Australia). Two species. This genus forms a connecting

link between *Antennarius* and *Pterophrynoides*, agreeing with the former in the robust form, the completely isolated rostral spine, the fixed pseudobranchium, and the small ventrals; with the latter principally in the smooth skin, (See p. 24 *infra* for key).

*RHYCHERUS WILDII*, *sp. nov.*

D. iii, 13 : A. 8 : C. 9 : P.10 : V. 5. Cutaneous appendages simple or ramose, longest on the head. Depth of body  $\frac{3}{5}$  of the total length. Upper profile from tip of snout to origin of soft dorsal undulating, the concavity between the frontal and occipital spines, wide and deep. Length of head  $1\frac{7}{8}$ , its width  $2\frac{3}{5}$  in the total length. Mental tubercle small; length of maxillary about  $\frac{1}{2}$  of that of the head, its distal extremity rounded and as wide as the eye. Snout  $6\frac{1}{2}$  in the length of the head,  $3\frac{1}{2}$  in that of the maxillary, and equal to the eye and the interorbital width. Rostral spine terminating in a pair of widely separated fleshy lobes, forming together a crescentic appendage, behind which is a low broad petiolate flap, bearing on each side a criniform filament: height of spine  $\frac{3}{8}$  of the length of the head; it extends, when depressed, beyond the naked interspinous fossa; second spine  $\frac{1}{4}$  longer than the first, fringed, bearing near its extremity a pair of lateral ramose filaments, and reaching back to the base of the occipital spine, which is similar, but shorter, and bears in addition a pair of median filaments, which are ciliated distally and more than half the length of the spine; height of spine  $2\frac{2}{5}$  in the head, its tip somewhat dilated and papillose, reaching, when depressed, to the origin of the second dorsal. Length of second dorsal rather more than its distance from the tip of the snout and rather less than the head; first ray slightly produced; second and third normal; middle rays (and probably the posterior) terminating in a long filament, the fifth\* about  $\frac{3}{4}$  of the length of the fin; the rays, when depressed, reach far beyond the base of the caudal. Anal fin originating below the 9th dorsal ray, rounded, the middle ray the highest,  $1\frac{1}{2}$  time the basal length.  $\frac{2}{3}$  of the highest dorsal ray, and reaching a little beyond the base of the caudal;

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\* Our specimen is in bad condition, and most of the radial filaments are broken.

its length is  $2\frac{3}{5}$  in that of the head, its distance from the tip of the closed mandible  $\frac{1}{5}$  of the total length; last dorsal and anal rays without membrane, leaving a clear space between them and the caudal fin. Length of caudal fin  $3\frac{2}{3}$  of space between its base and the last dorsal ray  $9\frac{2}{3}$ , least depth of caudal peduncle  $7\frac{1}{4}$  in the total length. Free portion of pseudobranchium and pectoral fin  $3\frac{1}{8}$  in the total length. Ventral fin  $2\frac{1}{5}$  in the head. Uniform brown.†  
(Named for Charles James Wild, Acting Curator of the Queensland Museum, by whose courtesy I am permitted to make the above description.)

Type in the Queensland Museum, Brisbane

Length to tip of middle caudal ray, 77 millimeters.

Distribution :—Southern Australia.

This species differs considerably from *Chironectes bifurcatus*, McCoy,§ with which, however, it is undoubtedly congeneric.

#### TATHICARPUS, *gen. nov.*

Form more or less robust; body compressed, elevated in front, rapidly tapering posteriorly. Head large, longer than deep. Skin dotted with small tubercles, separated from each other by a naked interspace, and each bearing a bifid spinule. Head and body with cutaneous appendages in varying number. Mouth protractile, with moderate, subvertical cleft; maxillary thin, flexible, remiform, with a strong median longitudinal ridge, extending far beyond cleft of mouth. Jaws, vomer, and palatines with strong unequal, cardiform teeth; tongue smooth. Eyes moderate, with well developed supraciliary ridge; infraorbital groove deep, naked. Gill-opening a rather large oval orifice, pierced at the end of a prominent papilla, and situated below and behind the inferior axil of the pseudobranchium. Fins spinulose with or without cutaneous appendages: dorsal spine erect, mobile, the two last membraniferous; rostral spine slender, long, inserted upon a small bony tubercle above

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† After a long immersion in alcohol. This cannot be taken as any indication of its true coloration.

§ Prodr. Zool. Vic., ii, p. 87, dec. xiii, 1886, pl. 123.

the tip of the snout and terminating in a simple tentacle ; frontal and occipital spines shorter and stouter than the rostral, latter inserted immediately behind eye, widely separated, without intervening naked fossa ; all the fin-rays simple ; second dorsal high, with 11 slender rays, connected by delicate, diaphanous membrane, and deeply cleft at the extremity : anal fin with 7 rays, similar to second dorsal, and inserted entirely or almost entirely behind it : caudal fin long and rounded, with 9 rays ; caudal peduncle free : pseudobranchium almost wholly free and mobile ; pectoral fin long and narrow, with 7 rays : ventrals moderate, pointed, with 5 rays, inserted behind the occipital spine. (*ραθείς*, extending ; *καρπός*, wrist : in reference to the greatly elongated actinosts).

East Coast of Queensland (Port Curtis). Two species. In the length and mobility of the pseudobranchium this genus is only approached by *Brachionichthys*, from which, however, the position of the gill-openings widely separates it.

#### *Key to the Species.*

Head and body with a few small scattered filaments ; pectoral fin reaching to the base of the caudal .. .. . *butleri*.  
 Head and body with numerous long ramulose filaments ; pectoral fin reaching to the end of the base of the anal. .. .. . *muscosus*.

D. i,i,i, 11 : A. 7 : C. 9 : P. 7 ; V. 5. Cutaneous appendages in small number, simple, longest on the chin, throat, and corner of the mouth. Depth of body  $1\frac{5}{6}$  in the total length. Upper profile from tip of snout to base of occipital spine gently, thence to origin of second dorsal strongly convex. Length of head  $1\frac{2}{3}$ , its width  $3\frac{2}{3}$  in the total length. Mental tubercle small ; maxillary extending to below the posterior border of the orbit, its length  $2\frac{1}{4}$  in that of the head, its distal extremity rounded, and about half as wide as the eye. Snout 6 in the length of the head,  $3\frac{2}{3}$  in that of the maxillary,  $1\frac{1}{5}$  in the diameter of the eye, and equal to the interorbital width. Rostral spine  $\frac{5}{8}$  of the head, extending, when depressed, midway along the interdorsal space ; frontal spine  $\frac{1}{2}$  of the rostral, curved, extending, as also does its membrane, to the base of the occipital spine ; occipital spine similar to but much longer than the frontal, bearing anteriorly a long median and sub-

terminal filament, its height  $2\frac{1}{6}$  in the head, and reaching backwards beyond the origin of the second dorsal, to the base of which it is attached by membrane. Length of second dorsal rather less than its distance from the tip of the snout and  $1\frac{3}{8}$  in the length of the head; rays subequal, the third the highest,  $\frac{3}{4}$  of the basal length; depressed rays reaching slightly beyond the base of the caudal. Anal fin originating behind the second dorsal, acutely pointed, the middle ray the highest,  $2\frac{1}{5}$  in the basal length, a little higher than the highest dorsal ray, and extending far beyond the base of the caudal; its length is rather more than  $\frac{1}{4}$  that of the head; its distance from the tip of the closed mandible  $\frac{4}{5}$  of the total length: last dorsal and anal rays without membrane, leaving a clear space between them and the caudal. Length of caudal fin  $2\frac{2}{7}$ , of space between its base and the last dorsal ray  $5\frac{1}{3}$ , least depth of caudal peduncle  $6\frac{3}{4}$  in the total length. Pectoral fin extending, when depressed, to the root of the caudal; its length with that of the free pseudobranchium about half the total length. Second ventral ray the longest,  $\frac{1}{3}$  of the head. Roseate; inter- and post-orbital regions, deep violescent gray studded with blackish spots and bars; the whole of the eye, except the pupil, which is yellow, suffused with a lighter tint of the same; a broad band across the preorbital and the inner edge of the maxillary violaceous gray; entire postmental, thoracic, and subopercular regions suffused with lilac; tip of chin violet; a round violaceous spot on the side of the head below the post-orbital blotch; a broad irregular violaceous band, with deeply embayed edges, and containing blotches and spots of deep black, from below the eight anterior rays of the second dorsal to the inner angle of the pseudobranchium; a large rounded spot of the same color below the middle of the appressed limb; a second band nearly covering the caudal peduncle; all the filaments, wherever situated, deep black. Rostral spine with alternate rings of violet and white, the tentacle blackish; membrane of frontal spine purple; basal half of occipital spine roseate, the rest purple; its entire membrane, except the outer angle, rosy; rays of soft dorsal blackish, the connecting membrane hyaline, more or less

clouded with violet ; anal fin similar to the soft dorsal, but crossed by four dark bars, the basal one continuous, the others interrupted ; caudal rays with black and yellow rings, the membrane uniformly hyaline ; posterior half of the outer edge of the pseudobranchium and the pectoral rays blackish ; ventral rays similar with lighter tips. (Named for Dr. A. Graham Butler, its discoverer).

Type in the Queensland Museum, Brisbane

Length to tip of middle caudal ray 93 millimeters.

Distribution : Port Curtis, Queensland.

Writing of this species Dr. Graham Butler informs me :—"The specimen in question was caught by the local fishermen, while netting among coral and seaweed for Trumpeter at 'North End', port Curtis Harbour. They had not seen one like it before, so it is evidently uncommon here. . . . . The color was a brilliant orange." Within the few days which elapsed between its capture and my receipt of it, the brilliant orange had faded to a dead white, with here and there a roseate tinge.

The most noticeable character in this fish is of course the enormous elongation of the carpal bones, which gives to the pectoral limb very much the appearance of the fore-leg of a frog, and like it is capable of moving easily upwards or downwards, but can only move forwards to a right angle with the body from the joint which unites it to the pectoral arch, the want of elasticity in the axillary membrane not permitting of a further movement in that direction. The second joint, however, allows of the pectoral rays being laid directly forwards alongside of the proximal actinosts. The fin itself is narrow, and resembles more the claws of a bird than the rays of a fish.

TATHICARPUS MUSCOSUS, *sp. nov.*

Head and body, except the abdominal region, with numerous long ramulose cutaneous appendages. Depth of body  $1\frac{3}{4}$ , length of head  $1\frac{2}{3}$ , width of head  $2\frac{6}{7}$  in the total length. Length of maxillary  $2\frac{2}{5}$  in that of the head. Snout  $5\frac{3}{4}$  in the head,  $2\frac{2}{5}$  in the



maxillary, equal to the diameter of the eye, and about  $\frac{1}{3}$  more than the interorbital width. Rostral spine  $2\frac{2}{3}$  in the length of the head, extending, when depressed, slightly beyond the occipital spine; frontal spine about  $\frac{2}{3}$  of the rostral, its membrane not extending to the succeeding spine, which, like it, terminates in long ramulose filaments; occipital spine similar to the frontal and as high as the rostral, its membrane extending about midway to the second dorsal. Length of second dorsal about  $\frac{5}{7}$  of that of the head; fourth ray the highest,  $\frac{2}{3}$  of the basal length; the depressed rays do not reach the base of the caudal. Anal fin originating below the penultimate dorsal ray, its middle ray about half the basal length. Length of caudal fin  $2\frac{2}{3}$ , of space between its base and the last dorsal ray  $5\frac{1}{2}$ , least depth of peduncle 7 in the total length. Pectoral fin extending, when appressed, to above the end of the anal, its length with that of the free pseudobranchium rather less than half of the total length. Second ventral ray  $3\frac{1}{3}$  in the head. Other characters as in *T. butleri*. Pale brown, with indistinct greenish spots and ocelli, the abdominal region with a yellow tinge. Rostral spine with alternate rings of gray and brown, the terminal tentacle darker brown; frontal and occipital spines pale brown, the membranes hyaline with greenish ocelli; rays and membrane of second dorsal with scattered dark green spots and dots; anterior portion of anal fin purple, the posterior rays purple-spotted, the entire fin with three light, dark-edged cross-bands; caudal rays with regular series of dark spots: pectoral limbs and fins and ventrals brown, more or less blotched and spotted with green. (*muscosus*, mossy: in allusion to the long ramulose filaments, with which the head, body, and fins are adorned).

Type in the Queensland Museum, Brisbane.

Length to tip of middle caudal rays 98 millimeters.

Distribution:—Port Curtis, Queensland

Appended is a key to the genera of the Australasian antennariids:—

a. ANTENNARIIDÆ. Skin naked and smooth or tubercular and spinulose; cleft of mouth vertical or sub-vertical, the lower jaw projecting; gills  $2\frac{1}{2}$  or  $\frac{1}{2}$   $2\frac{1}{2}$ ;

no pseudobranchiæ; pseudobranchium well developed, strongly geniculated, with three actinosts; ventral fins present.

b. Head more or less compressed; anterior dorsal fin with three spines.

c. Body robust and ovate; palatine teeth present; gill-opening in or behind lower axil of pseudo-brachium; five ventral rays; stomach dilatible; an air-bladder (*Antennariinæ*).

d. Gill-openings pore-like; anal fin opposite to soft dorsal; pseudobranchium not produced as a mobile limb; pectoral rays at least nine.

e. Two anterior spines of first dorsal united by membrane, the third isolated; ventral fins small .. .. SACCARIUS.

ee. All three spines of first dorsal isolated.

f. Skin granular and spinulose; ventral fins small .. .. ANTENNARIUS.

ff. Skin smooth, without spinuliferous granules.

g. Soft dorsal and anal fins short; pectoral undivided.

h. Rostral spine long, inserted on tip of snout; occipital spine free; pseudo-brachium immobile; ventral fins small .. .. RHYSCHERUS.

hh. Rostral spine short, inserted on base of frontal spine; occipital spine membraniferous; pseudobranchium mobile; ventral fins large PTEROPHRYNOIDES.

gg. Soft dorsal and anal fins long; pectorals divided; ventrals small .. .. TETRABRACHIUM.

dd. Gill-openings enlarged and tubular; anal fin behind soft dorsal; pseudobranchium produced as a free mobile limb; ventral fins moderate .. .. TATHICARPUS.

cc. Body slender and elliptical; no palatine teeth; gill-opening above and behind upper axil of



pseudobrachium; four ventral rays; stomach not dilatible; no air bladder. (*Brachionichthyinæ*).

- i. Gill-openings small and tubular; two posterior spines of first dorsal united by membrane; pseudobrachium produced as a free mobile limb; pectoral rays seven.

.. .. BRACHIONICHTHYS.

The subgeneric name *Diceratias*, given by Günther\* to *Ceratias bispinosus* from the Molucca seas, being untenable owing to the previous use of *Diceratia* by Oken in 1815 for a genus of mollusks, I propose to substitute *Æschynichthys*.†

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\*Zool., Challenger, xxii., p. 52, 1887.

†*ἄσχυνη*, shame or disgrace; *ἰχθύς*, a fish; hence a degraded form of fish.